

2N2222A

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Max | Unit |
|--|---------------|------------------------------|---------------------------|-------------------------|
| OFF CHARACTERISTICS | | | | |
| Collector–Emitter Breakdown Voltage ($I_C = 10\text{ mAdc}$) | $V_{(BR)CEO}$ | 50 | – | Vdc |
| Collector–Base Cutoff Current ($V_{CB} = 75\text{ Vdc}$) ($V_{CB} = 60\text{ Vdc}$) | I_{CBO} | – – | 10 10 | μAdc nAdc |
| Emitter–Base Cutoff Current ($V_{EB} = 6.0\text{ Vdc}$) ($V_{EB} = 4.0\text{ Vdc}$) | I_{EBO} | – – | 10 10 | μAdc nAdc |
| Collector–Emitter Cutoff Current ($V_{CE} = 50\text{ Vdc}$) | I_{CES} | – | 50 | nAdc |
| ON CHARACTERISTICS (Note 1) | | | | |
| DC Current Gain ($I_C = 0.1\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$) ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$) ($I_C = 10\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$) ($I_C = 150\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$) ($I_C = 500\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$) | h_{FE} | 50 75 100 100 30 | – 325 – 300 – | – |
| Collector–Emitter Saturation Voltage ($I_C = 150\text{ mAdc}$, $I_B = 15\text{ mAdc}$) ($I_C = 500\text{ mAdc}$, $I_B = 50\text{ mAdc}$) | $V_{CE(sat)}$ | – – | 0.3 1.0 | Vdc |
| Base–Emitter Saturation Voltage ($I_C = 150\text{ mAdc}$, $I_B = 15\text{ mAdc}$) ($I_C = 500\text{ mAdc}$, $I_B = 50\text{ mAdc}$) | $V_{BE(sat)}$ | 0.6 – | 1.2 2.0 | Vdc |
| SMALL–SIGNAL CHARACTERISTICS | | | | |
| Magnitude of Small–Signal Current Gain ($I_C = 20\text{ mAdc}$, $V_{CE} = 20\text{ Vdc}$, $f = 100\text{ MHz}$) | $ h_{fe} $ | 2.5 | – | – |
| Small–Signal Current Gain ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $f = 1\text{ kHz}$) | h_{fe} | 50 | – | – |
| Input Capacitance ($V_{EB} = 0.5\text{ Vdc}$, $I_C = 0$, $100\text{ kHz} \leq f \leq 1.0\text{ MHz}$) | C_{ibo} | – | 25 | pF |
| Output Capacitance ($V_{CB} = 10\text{ Vdc}$, $I_E = 0$, $100\text{ kHz} \leq f \leq 1.0\text{ MHz}$) | C_{obo} | – | 8.0 | pF |
| SWITCHING (SATURATED) CHARACTERISTICS | | | | |
| Turn–On Time (Reference Figure in MIL–PRF–19500/255) | t_{on} | – | 35 | ns |
| Turn–Off Time (Reference Figure in MIL–PRF–19500/255) | t_{off} | – | 300 | ns |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

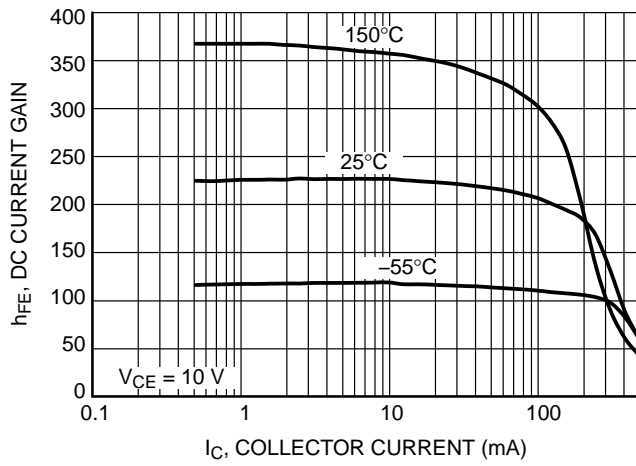


Figure 1. DC Current Gain

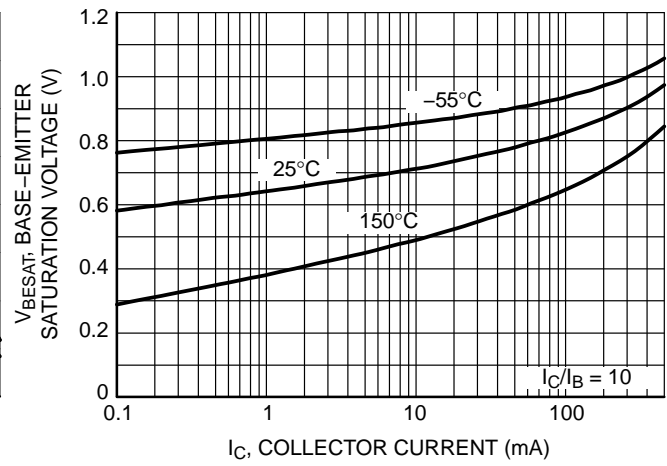


Figure 2. Base-Emitter Saturation Voltage

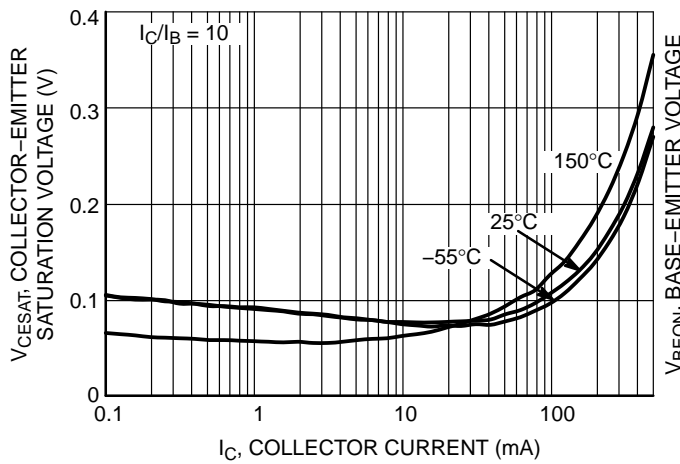


Figure 3. Collector-Emitter Saturation Voltage

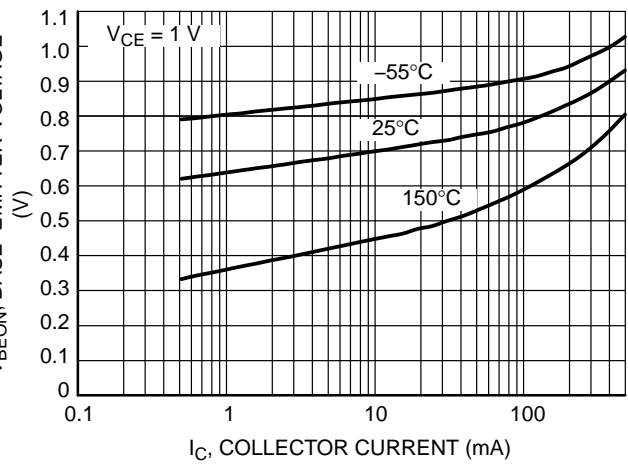


Figure 4. Base-Emitter Voltage

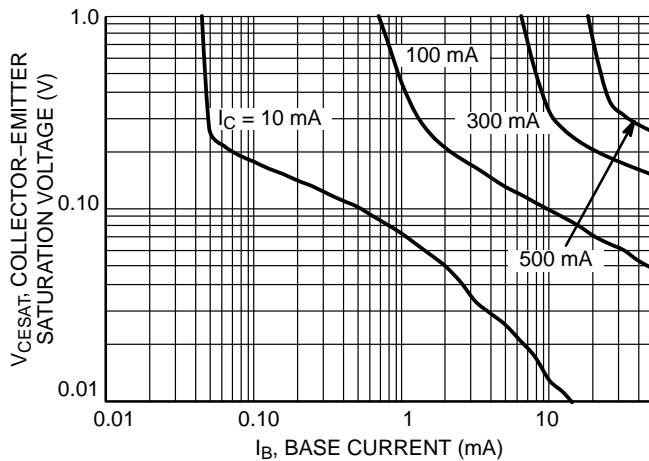


Figure 5. Collector Saturation Region

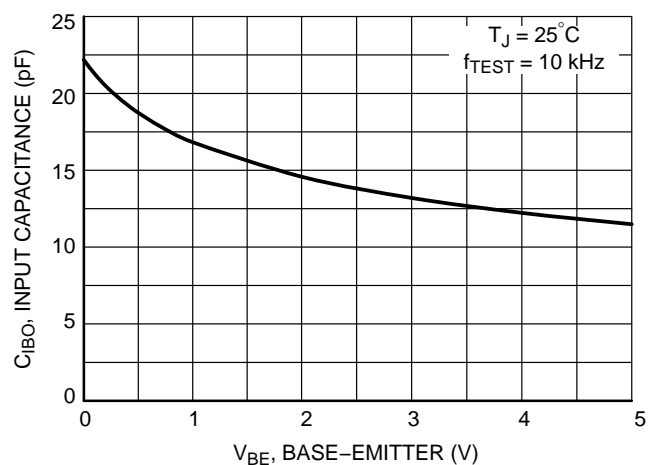


Figure 6. Input Capacitance

2N2222A

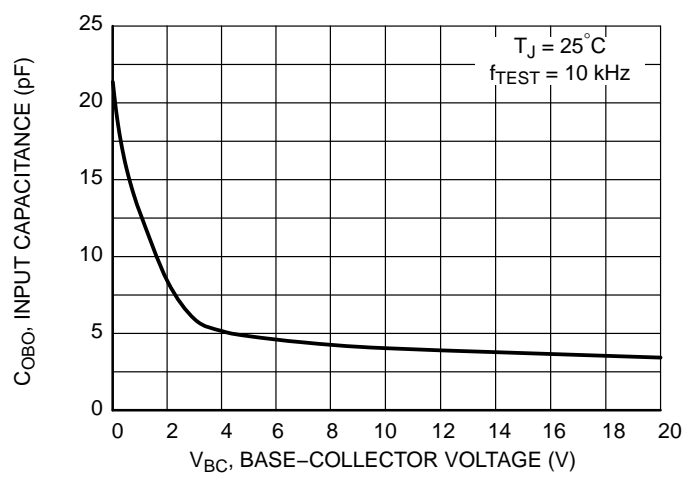


Figure 7. Output Capacitance

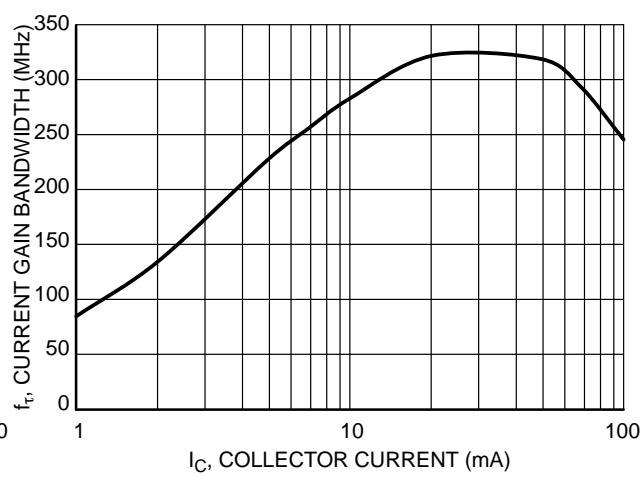
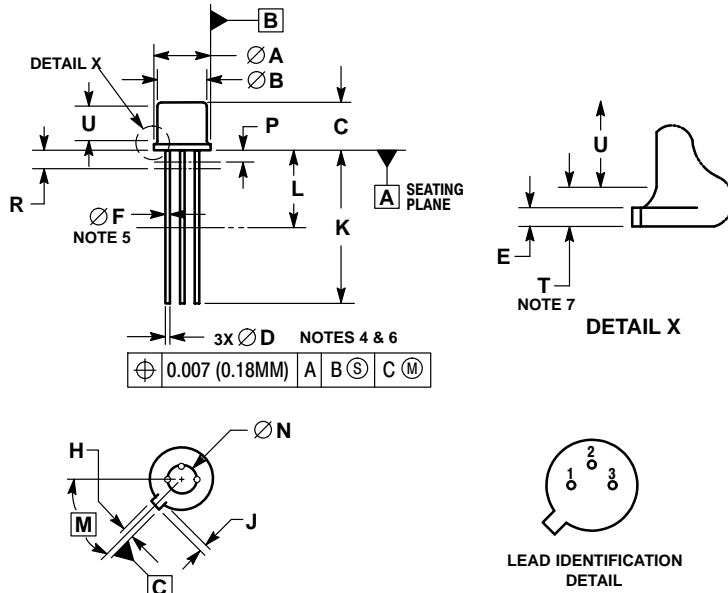


Figure 8. Current Gain Bandwidth Product

2N2222A

PACKAGE DIMENSIONS

TO-18 3 CASE 206AA ISSUE A



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSION J MEASURED FROM DIAMETER A TO EDGE.
4. LEAD TRUE POSITION TO BE DETERMINED AT THE GAUGE PLANE DEFINED BY DIMENSION R.
5. DIMENSION F APPLIES BETWEEN DIMENSION P AND L.
6. DIMENSION D APPLIES BETWEEN DIMENSION L AND K.
7. BODY CONTOUR OPTIONAL WITHIN ZONE DEFINED BY DIMENSIONS A, B, AND T.

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|-------|-----------|-------|
| | MIN | MAX | MIN | MAX |
| A | 5.31 | 5.84 | 0.209 | 0.230 |
| B | 4.52 | 4.95 | 0.178 | 0.195 |
| C | 4.32 | 5.33 | 0.170 | 0.210 |
| D | 0.41 | 0.53 | 0.016 | 0.021 |
| E | --- | 0.76 | --- | 0.030 |
| F | 0.41 | 0.48 | 0.016 | 0.019 |
| H | 0.91 | 1.17 | 0.036 | 0.046 |
| J | 0.71 | 1.22 | 0.028 | 0.048 |
| K | 12.70 | 19.05 | 0.500 | 0.750 |
| L | 6.35 | --- | 0.250 | --- |
| M | 45° BSC | --- | 45° BSC | --- |
| N | 2.54 BSC | --- | 0.100 BSC | --- |
| P | --- | 1.27 | --- | 0.050 |
| R | 1.37 BSC | --- | 0.054 BSC | --- |
| T | --- | 0.76 | --- | 0.030 |
| U | 2.54 | --- | 0.100 | --- |

STYLE 1:

1. EMITTER
2. BASE
3. COLLECTOR

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2N2222A/D